DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
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5090
Ser 06CH.KF/626
March 7, 2003

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Dear BCT members:

Enclosure (1) is provided for your review and information regarding the Responses to Comments from the regulatory agencies and public on the Draft Historical Radiological Assessment (HRA), Hunters Point Shipyard (HPS).

As you know the Navy's Radiological Affairs Support Office (RASO) is in the process of a comprehensive review of all available information pertaining to radiological operations at HPS. The Navy is committed to preparing an accurate and comprehensive Draft Final HRA. In order to achieve this goal, the Navy must complete their review of all available records and conduct interviews with personnel familiar with past radiological operations at HPS. Given the scope of these efforts, the submittal of the Draft Final HRA will be delayed until Fall 2003. I will forward a specific date for submittal of the Draft Final HRA as the Navy progresses in their comprehensive review of all available information.

Please note that the HRA will provide a "snapshot" of the radiological conditions at HPS at the time of publication. The results of the ongoing Phase V radiological investigation and related surveys and remediation, performed under the basewide radiological removal action, will be summarized in parcel-specific radiological removal action closeout reports. The radiological removal action closeout report for Parcel B will be the first such document submitted, and is anticipated to be published shortly after submittal of the Draft Final HRA.

Should you have any concerns with this matter, please contact the undersigned at (619) 532-0913.

Sincerely,

KEITH FORMAN
BRAC Environmental Coordinator
By direction of the Commander

Enclosure (1) Responses to Comments on the Draft Historical Radiological Assessment, Volume II, Use of General Radioactive Materials, 1939-2002, Hunters Point Shipyard, March 7, 2003

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March 7, 2003
RESPONSE TO COMMENTS
DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II,
USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

RESPONSE TO ENVIRONMENTAL PROTECTION AGENCY REGION IX COMMENTS ON HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II, USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

This document presents the Navy's responses to comments from the Environmental Protection Agency (EPA), Region IX on the "Draft Historical Radiological Assessment (HRA), Volume II, Use of General Radioactive Materials 1939-2002, HPS, San Francisco, California," dated March 29, 2002. The comments were forwarded to the Southwest Division, Naval Facilities Engineering Command by a letter dated June 6, 2002 from Claire Trombadore, Remedial Project Manager. Three sets of comments were provided.

The responses below reply to general comments forwarded as Attachment 1.

Attachment 1 Comment 1 **EPA concurs with the comments provided by Amy Brownell of the City of San Francisco in an email message to Keith Forman of the Navy on April 18, 2002. EPA also noted these same inconsistencies and asks that the Navy carefully review the text to ensure that corrections are made to the Draft Final HRA. For example, there continues to be some confusion as to which former NRDL buildings are located on Parcel A. It is EPA's understanding that only two former NRDL buildings are located on Parcel A - Building 816 and Building 821. Building 815 is a formerly used defense site and is not located on Parcel A. However, in Section 6 of the HRA, Building 815 is discussed under Section 6.6.1 regarding Parcel A. This occurs again in Section 8.3.1.1.**

Response The Navy will address the inconsistencies and inaccuracies in the Draft HRA and when preparing the Draft Final HRA. As noted by the EPA, Building 815 is a FUDS and is not located in Parcel A. The only former NRDL buildings in Parcel A are Buildings 816 and 821.

Attachment 1 Comment 2 **Building 815. Please clarify whether or not the waste tanks located outside of Building 815 were/are underground tanks or above ground tanks and state whether or not they are still there. Further, at least two places in the HRA (Section 6.2, page 6-5 and Section 6.6.1, page 6-32) these tanks are said to be 10,000-gallon tanks. However, recent discussions with the Navy have confirmed that these waste tanks were/are actually 15,000 gallons. Please revise the text regarding the Building 815 waste tanks to address this comment.**

Response The underground storage tanks are still present outside of Building 815, but are part of the property that was sold to a private entity. A letter from the owner of Building 815 states that the tanks are currently used to collect and pump storm run off from the property. The capacity of the two tanks is 15,000 gallons each. This information will be clarified in the Draft Final HRA.

Attachment 1 Comment 3

Formerly Used Defense Sites (FUDS). At the conclusion of the discussion on Building 815 on page 6-33, the Navy states that as a result of the building being a FUDS coupled with the results of earlier investigations and decontaminations of the building, it will not be included in the Phase V radiological investigation. Please explain what next steps are required, if any, with regard to Building 815 as well as other FUDS (e.g., Buildings 820, 830 and 831) that were involved in the Navy NRDL program. Are earlier studies sufficient or will radiological issues be revisited during a future FUDS investigation by the Corps of Engineering. When will the COE investigate HPS FUDS?

Response

The FUDS, Buildings 815, 820, 830 and 831, are all privately owned. The HRA documents the surveys that were conducted previously in these buildings. The previous studies may be re-visited during potential future Corps of Engineers investigations into the FUDS at Hunters Point. The Corps of Engineers will determine the need and schedule of future investigations if appropriate.

Attachment 1 Comment 4

IR-07. The Navy's Draft HRA generally supports the absence of G-RAM at the submarine base area of Parcel B also known as IR-07. However, surface surveys do not penetrate very deep and according to Section 6.5.12.2, only one trench pit was excavated in IR-07. Please include a figure displaying the location of this trench pit and note to what depth it was excavated. While completing the excavation remediation of IR-07, the Navy has time and time again come across debris and sandblast grit. While radiation surveys and lab analyses have indicated there is no G-RAM present, as a precaution, the Navy and future users of this submarine base area should routinely monitor for radionuclides during any excavation activities.

Response

Additional information on IR-07 will be included in the Draft Final HRA. If possible, this will include a figure with the location and depth of the trench pit. Samples taken to date have only identified naturally occurring radionuclides and have not indicated a need for further investigations. Specific information on the site will be included in release documentation for regulatory review.

Attachment 1 Comment 5

Building 816, Parcel A. Please add a bit of background under Section 6.5.12.3, 1993 PRC H-3 Study, to clarify that the interior of Building 816 was decontaminated and cleared by AEC when NRDL was disestablished in 1969-70. However, the exterior of the building was not surveyed and cleared. For this reason, DHS recommended that the Navy undertake the exterior building survey in 1993.

Response

Additional clarification on the decontamination and clearing of Building 816 will be included in the Draft Final HRA.

Attachment 1 Comment 6 **Section 6.5.12.3, 1993 PRC H-3 Study, bottom of page 6-25. Typographical error - "and confirmed".**

Response This and other typographical errors will be corrected in the Draft Final HRA.

Attachment 1 Comment 7 **Section 6.5.12.3, 1993 CaDHS H-3 Study, page 6-26. The Navy may want to note that EPA concurred that no further action, with respect to radiation, was required at Building 816.**

Response The Draft Final HRA will note EPA's concurrence that no further action, with respect to radioactivity, was required at Building 816.

Attachment 1 Comment 8 **Section 6.5.12.3, Phase III Radiological Investigation. It is EPA's understanding that Phase III was to look at several buildings located on Parcel B but that upon further investigation, the Navy determined that surveys were not required. These buildings included Building 113, 113A, 114 and 146. This is not discussed in the HRA under Section 6.5.12.3 on the Phase III Radiological Investigation. However, these buildings are discussed later in the HRA under Section 6.6.2 regarding Parcel B. Despite the Navy concluding no further investigation was warranted for these Parcel B buildings during Phase III, most of them are being surveyed under the current Phase V radiological investigation. According to the HRA, Parcel B Buildings 103, 113, 113A as well as Buildings 103 and 130 and 146 will be surveyed as part of the Phase radiological investigation at HPS which is currently underway. Please provide some additional discussion as to why the Navy determined that these buildings should be surveyed under Phase V.**

Response The Navy chose to include Buildings 103, 113, 113A 130 and 146 in the Phase V Radiological Investigation because there is no historical survey data available to support the release of these buildings.

The fact that the Navy considers Buildings 113, 113A, 114 and 146 to require no additional investigations during Phase III will be added to Draft Final HRA.

Attachment 1 Comment 9 **Ensure that only Phase V data that has been reviewed and signed off on by the regulators is included in the Final HRA. Including the Phase V work plan, if it has been approved by the regulators, in an appendix of the HRA, provides useful information to the community as to the next steps in the radiological investigations of HPS. However, preliminary data and results that have not been reviewed or approved by the regulators (e.g., Appendix E) should not be included in the HRA. At the conclusion of Phase V, EPA proposes that the Navy issue a separate closeout report for our review and approval.**

Response The Draft Final HRA will not include any data from the Phase V radiological investigations. The Phase V reports will be published as separate documents for regulatory review.

Attachment 1 Comment 10

Section 5, Regulatory Involvement. The Navy may also want to include discussion in this section regarding EPA's oversight role at HPS. Since the site is on the National Priorities List, EPA is ensuring that the Navy completes the investigation and cleanup of the site in accordance with the requirements of CERCLA and in order to protect human health and the environment in both the short and long term. EPA is ensuring that releases of radiological contamination to the environment at HPS are fully addressed under CERCLA and has asked that the Navy cleanup to a level that meets our risk based preliminary remediation goals (PRGs) for radionuclides or to indistinguishable from background as appropriate. EPA Region 9 Superfund Radiation Expert, Mr. Steve Dean works very closely with the Navy to ensure the appropriate investigation and cleanup of radionuclides contamination at HPS. Further, EPA conducts independent confirmation radiation surveys to ensure adequate investigation and cleanup.

Response

The Navy will ensure that EPA's role in current radiological investigations and property releases at HPS is properly reflected in the Draft Final HRA.

Attachment 1 Comment 11

Building 821. On page 6-34, the Navy states that no further radiological work is required for this building. However, the Navy did recently conduct a radiological survey at Building 821. Only very low levels of cesium, approximating atmospheric fallout were detected in a drain line. Further it is EPA's understanding that the material in the drain was removed in the course of obtaining a sample. The Navy should briefly summarize this information for Building 821 in the Final HRA.

Response

Since the Draft HRA was published, Building 821 was investigated to address regulatory and public concerns. A complete report of this investigation has been distributed to and reviewed by regulators. Subsequently, the California Department of Health Services (CaDHS) has released the building for unrestricted use. The results of the survey and release of the building by CaDHS will be documented in the Draft Final HRA.

March 7, 2003
RESPONSE TO COMMENTS
DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II,
USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

The responses below reply to comments by Steve Dean, EPA Region 9, Superfund Technical Support Team forwarded as part of Attachment 2 to EPA Region IX letter of June 6, 2002. Comments were made on the body of the HRA and on Appendix E of the HRA separately.

Dean HRA Comment 1

Section 4.1.3, page 4-3: At this writing California Department of Health Services use of the NRC's 25 millirem per year dose limit as its unrestricted use release standard is being challenged in court and by the California state legislature. I recommend that the Navy use EPA's maximum dose limit of 15 millirem per year to release buildings at HPNS for unrestricted use until the legal issues surrounding the NRC dose limit are resolved.

Response

The Navy will work closely with the California Department of Health Services and other concerned regulatory agencies to establish appropriate release limits for buildings at HPS based on best available technology, proposed future use of the site, and economic feasibility. The concept of ALARA will be applied with any release limit that is established.

Dean HRA Comment 2

Section 6.3, page 6-8, bullet item 3: If the Navy discontinued ocean disposal of radioactive contaminated sandblast materials used for ship decontamination during Operation Crossroads has the Navy yet determined the fate of radioactive contaminated sandblast materials generated after ocean disposal ceased?

Response

The most complete documentation of disposal of radioactively contaminated sandblast materials from OPERATION CROSSROADS ships found to date is in the report "OPERATION CROSSROADS 1946" published by the Defense Nuclear Agency as DNA 6032F in May 1984 (pages 142-143). This report was referenced in the Draft HRA as "DoD 1984" and states:

"Cleaning ships' hulls using wet sandblasting and cleaning saltwater pipes using various acid solution began early in the effort to decontaminate non-target CROSSROADS vessels. Until 4 December 1946, the sand and acid solution used in decontamination was segregated and disposed of at sea.

"The problem of disposal was discussed at the Washington BuShips conference on 27 November. The conferees concluded that (Reference C.9.187, pp. 108 and 109):

"1. Special disposal of sand used in sandblasting underwater bodies of radioactively contaminated nontarget ships is not required, provided marine growth is removed first and disposed of...

"Based on experience at the San Francisco Naval Shipyard and the discussion at the conference, CJTF issued a message on 4 December stating, in part, that (Reference C.9.187, p. 53):

"1. Special disposal of sand used in wet sandblasting of underwater bodies of CROSSROADS nontarget vessels is not required."

Specific instructions for the disposal of the sandblast grit after 4 December 1946 have not been found, however additional research is ongoing. Currently any sandblast grit discovered at HPS is being screened for residual contamination. No radioactivity, other than that occurring naturally in the sandblast grit, has been found.

Dean HRA Comment 3

Section 6.5.3, page 6-12, paragraph one: A beta-gamma dose rate at 1 square centimeter average of less than 0.2 millirem per hour would exceed the current EPA 15 millirem per year and NRC 25 millirem per year dose standards.

Response

The intent of Section 6.5.3, page 6-12, paragraph is to document the release levels that were used when NRDL was closed. The Navy is aware that those levels would exceed today's standards and is conducting the Phase V investigations to eliminate any concern of residual contamination.

Dean HRA Comment 4

Section 6.5.3, page 6-13, bullet item one: It appears that these two radioactive waste water storage tanks are still in place on the west side of Building 815. Since this building is now under private ownership, it now falls under state and local authorities to determine whether or not these tanks should remain in place.

Response

The Navy agrees. The underground storage tanks are still present on the west side of Building 815. The City of San Francisco has recently communicated with the building owner about the tanks. Based on the response, the tanks are currently used to collect and pump storm water run-off from the property.

Dean HRA Comment 5

Section 6.6.1, page 6-34, paragraph 3: The phase "Survey findings verified that no release had occurred outside the building" is not technically accurate. The survey findings did verify that no residual tritium contamination still remained as a result of activities inside the building. Tritium releases from inside the building did likely occur but tritium is so mobile that once released it dissipated rapidly into the environment.

Response

The Draft Final HRA will include a statement that the survey findings verified that no residual tritium contamination remained outside of the building as a result of activities inside the building.

Dean HRA Comment 6

Section 6.6.3, page 6-42, Berth 2: It has been my understanding that once the drums were recovered by divers the drums were inspected and tested to insure that no radioactive material had escaped from them. If the Navy has documentation that verifies this, then text should be added to further clarify the issue.

Response

Based on NRDL 1954 Annual Radiation Safety Report, all 29 drums were recovered from Berth 2 and were disposed of at sea on the next barge trip. The drums belonged to the University of California Research Laboratory. The report does not include any information on inspection or testing of the drums or mention any leakage or contamination.

Dean HRA Comment 7

Section 6.6.5, page 6-52: Has the Navy discussed the spill at the Building 506 parking lot with Filbert Fong, former Radiation Safety Officer at HPNS? He once claimed to me that a strontium 90 (Sr90) occurred outside of one of 500 series buildings. However the cesium 137 peanut spill was not discovered until after Mr. Fong left the HPNS radiation investigation team. It is possible that this spill was actually the cesium 137 (Cs137) peanut spill that occurred in the parking lot of Building 364. The Navy should try to reconcile whether the Sr90 spill at Building 506 is in fact the Cs137 spill at Building 364.

Response

The Navy has discussed many aspects of the history of NRDL with Mr. Fong. Preliminary investigations of the area of the 500 series buildings have not detected Sr-90. However, the investigations in the area of the 500 series buildings are not complete. Forthcoming investigations will address the possibility of an Sr-90 spill in the area of the 500 series buildings and whether or not it could have been the Cs-137 spill at Building 364. The results of the investigations will be included in Phase V radiological investigation reports.

Dean HRA Comment 8	**Section 6.6.5, page 6-55, paragraph 2: Was the radionuclide generating the gamma source ever identified? Is there still residual gamma contamination remaining? I am concerned that gamma anomalies are found and removed but the radionuclide responsible never properly identified. Portable gamma spectroscopy makes in situ analysis a practical reality for site characterization.**
Response	The gamma anomaly has been identified as radium-226 contaminated sand that was found near the former Building 520 site that is adjacent to the former Building 529 site. Specific information will be provided in the Phase V Investigation Reports.
Dean HRA Comment 9	**Section 9.0, page 9-1: I am certain that radium devices were detected in the mud flats of the intertidal zone during the Eberline walkover survey conducted on IR2 circa 1992.**
Response	The Navy reviewed numerous surveys reports for HPS. A survey by Eberline was not found. HLA performed a survey in 1988 and PRC performed a survey in 1990-1991. While the exact location of the "mud flats of the intertidal zone" is not identified, the Navy has included the entire shoreline of Parcel E in the Phase V investigation. This ongoing portion of the investigation has identified radioactive anomalies thought to be radium devices. The final results will be provided in the Phase V Investigation Report for the Parcel E Shoreline.
Dean App E General Comment	**I recommend that once the HRA and this survey report are ready for release as final documents each should be released under separate. This will help keep the historical perspective separate from the work still in progress.**
Response	The Navy agrees. The Draft Final HRA will be a separate document from the Phase V Investigation Reports. The Phase V reports will be issued under separate cover and presented for regulatory review.
Dean App E Bldg 130 Comment 1	**Section 4.1, Page 4, paragraph one: I think that Building 130 should have been designated a MARSSIM Class 2. This building was used for radioactive contaminated waste storage during the early '90s by PRC. This waste was generated by PRC during its sampling activities as part of its early site investigations of potentially radiation contaminated areas within the shipyard. While the material was stored in 55 gallon drums the building itself could have been impacted and should be investigated as a Class 2.**

Response

The Navy selects a Class 3 survey for impacted areas where we do not expect to find contamination or areas of elevated activity. As part of standard radioactive waste shipping procedures, the outside of the waste containers and the Building 130 storage locations were surveyed at the time of shipment and found to be free of contamination. Based on the results of these surveys, there was no expectation of residual radioactivity in the building, and therefore a Class 3 survey was considered adequate.

Dean App E Bldg 130 Comment 2

Section 6.0, Page 9, paragraph two: I have personally surveyed sample points #23 and #25 and it has a slightly elevated gamma level IE about 1 to 2 microRoentgen per hour (r/hr) higher than most other areas of the floor. The spectral data provided for sample points #23 and #25 do not clearly explain what the cause(s) of these slight gamma anomalies is. I used an in situ gamma spectrometer that indicated that the probable radionuclide responsible is thorium 232 (Th232). Unfortunately, I did not perform the analysis long enough to yield conclusive results. These sample points need a more thorough spectrum data analysis to positively identify the radionuclide(s) generating the slightly elevated gamma readings.

Response

The samples were taken from Point 21 and Point 25. Gamma spectroscopy of the two samples identified Ra-226. Gravel has been used as fill in this area. Based on the results, the elevation was attributed to naturally occurring radium in the gravel.

Dean App E Survey Data Comment

Sample Description B130A-21 (1174)G and B130A-25 (1128)G: Both gamma spectroscopy results report radium 226 (Ra226) levels significantly higher than its daughters which should be in equilibrium. Is this an artifact of the analytical method or have these areas been contaminated with slightly elevated levels of anthropogenic radium of recent origin? Please explain.

Response

The area where these two samples were taken had been previously disturbed and filled with gravel. Laboratory analysis indicated the elevated levels were due to naturally occurring radium in the gravel that was recently introduced to the site.

Dean App E Dry Dock #6 Comment 1

Section 4.1, page 4, paragraph one: I think that Dry Dock #6 should have been designated a MARSSIM Class 2 survey. The historical information shows that at least 6 Operation Crossroads submarines had some radioactive fallout decontamination performed there. The dry dock and the immediate surrounding area should have been designated a Class 2.

Response

The Navy selects a Class 3 survey for areas where we do not expect to find contamination or areas of elevated activity. Historical information documents the survey and release of Dry Dock 6 after the completion of decontamination of ships from OPERATION CROSSROADS. However, the historical release is only summarized with no documentation of release standards or survey equipment. The Navy considered a Class 3 survey adequate to confirm the results of the previous release. If elevated levels are identified during the conduct of a Class 3 survey, the area is reclassified for more comprehensive surveying.

Dean App E Dry Dock #6 Comment 2

Sections 4.4.1 and 4.4.2.1, page 6: Which building at Dry Dock #6 are these sections referring to?

Response

The "building" referred to in the document was the actual dry dock structure. This discrepancy will be corrected when the Dry Dock 6 report is published as part of the Phase V Investigation reports.

Dean App E Dry Dock #6 Comment 3

Section 4.7, Table 2, page 9: The DCGLs for americium 241 (Am241) and strontium 90 (Sr90) seem too high. Why were these values selected?

Response

The Navy agrees that the DCGLs for Am-241 and Sr-90 are too high. The values listed in the Dry Dock 6 report were obtained from The Table of Risk Comparison for Radionuclides in Soil, April 13, 1998. The DCGLs will be readdressed in the Phase V Investigation Reports that will be reissued in a different format under separate cover.

Dean App E Dry Dock #6 Comment 4

Section 7.0, page 12: The Conclusions section does not make a compelling case that Dry Dock #6 has no cesium 137 (Cs137) contamination from Operation Crossroad work performed there. Please elaborate on the comparison of the dry dock sediment sample Cs137 concentrations to the Battelle Marine Sciences Laboratory sediment samples taken elsewhere in HPNS bay.

Response

When comparing data from Battelle Marine Sciences with that found during the Phase V Investigation of Dry Dock 6, the following is observed:

Dry Dock 6: Average Cs-137 = 0.1764 pCi/g
Standard deviation of 0.0291

Battelle: Average Cs-137 = 0.1188 pCi/g
Standard deviation of 0.1713 and a range of 0.02 to 1.0 pCi/g.

It is not possible to determine whether the Cs-137 in the sediment from Dry Dock 6 is attributable to decontamination work on the OPERATION CROSSROADS ships or from fallout from weapons testing. The Cs-137 average from the sediment in Dry Dock 6 is not statistically higher than the Cs-137 average from the bay and the data from Dry Dock 6 is within the range for the bay.

Dean App E Work Plan Comment

Section 3.3, page 6, paragraph one: At this writing California Department of Health Services use of the NRC's 25 millirem per year dose limit as its unrestricted use release standard is being challenged in court and by the California state legislature. I recommend that the Navy use EPA's maximum dose limit of 15 millirem per year to release buildings at HPNS for unrestricted use until the legal issues surrounding the NRC dose limit are resolved.

Response

The Navy will continue to work closely with the California Department of Health Services and other concerned regulatory agencies to establish an appropriate release limit for buildings at HPS based on available technology, proposed future use of the site, and economic feasibility. The concept of ALARA will be applied with any release limit that is established.

March 7, 2003
RESPONSE TO COMMENTS
DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II,
USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

The responses below reply to comments by Signal Corp, EPA Region 9 Contractor for radiological issues forwarded as part of Attachment 2 to EPA Region IX letter of June 6, 2002.

Signal Corp General Comment	**The conclusions drawn in the summary of this document are generally supported by the documentation. The most significant issue seems to be the disposition of drains, sewers, and tank/sump residuals. In several cases, elevated readings in these areas have not led to further investigation.**
Response	As part of the Phase V Investigation, the Navy will investigate applicable sewer and storm drain lines, if elevated levels of radioactivity are discovered in connected drains or manholes.
Signal Corp Specific Comment 1	**Page 6-30, Findings: It is stated that no samples collected at the Building 364 Cs-137 spill contained Cs-137 at concentrations greater than the site specific criterion. It then states that CERCLA removal was recommended for Building 364. Why the removal if the Cs-137 was below the site specific criterion?**
Response	There was additional remediation at the spill location and other areas outside of Building 364. The information on Page 6-30 of the Draft HRA will be revised to accurately reflect the actions required and taken outside of Building 364 in the area of the Cs-137 spill. This information will be detailed in the Draft Final HRA.
Signal Corp Specific Comment 2	**Page 6-52, para.3: The text suggests that there may still be residual radioactivity in Building 506, where a stainless steel tank used to be.**
Response	Building 506 was decontaminated and free released during the closure of NRDL. Since that time, the building has been demolished and the debris removed. The former building site and previous tank location are being investigated as part of the ongoing Phase V Investigation. The findings of this investigation will be provided in the Phase V Investigation Report for Building 506.
Signal Corp Specific Comment 3	**Page 6-53, Building 509: The anomalous reading found after this site was demolished suggests the possibility of environmental release.**

Response

The Navy agrees. The identification of an anomaly does indicate the possibility of an environmental release. The former building site is being further investigated as part of the ongoing Phase V investigation. The findings of this investigation will be provided in the Phase V Investigation Reports.

Signal Corp Specific Comment 4

Page 6-54: Building 517: This building, also, demonstrates an anomalous reading suggestive of possible environmental release.

Response

The identification of an anomaly does indicate the possibility of an environmental release. The former building site is being investigated as part of the ongoing Phase V Investigation. The findings of this investigation will be provided in the Phase V Investigation Report.

Signal Corps Specific Comment 5

Page 6-59, Building 529: Gamma readings increasing in depth suggests a possible spill.

Response

The Navy assumes that the comment refers to the descriptions for Building 529 on page 6-55. The gamma readings were located in a small excavation along the edge of a building foundation. Additional investigation has identified an area of sand contaminated with Ra-226. The sand has been remediated and investigations of the area are continuing as part of the ongoing Phase V Investigation. The findings of this investigation will be provided in the Phase V Investigation Report.

Signal Corps Specific Comment 6

Page 8-3, 8.3.1.2: the first paragraph states that Buildings 103 and 130 could have contaminated soil. The following paragraphs describe why both buildings were categorized as "No Further Action". It is not clear from the description why no further action is justified.

Response

The Draft HRA was written as Phase V Investigations were being conducted. While the possibility existed that there could have been contamination at either site, the Phase V Investigations found no evidence of contamination and it was determined that no further action was warranted. The Draft Final HRA will be amended to only include historical information for the site. Results of the ongoing Phase V Investigations will be published in separate site-specific reports.

Signal Corps Specific Comment 7	**Page 3-5, 3.2.2: The lower thickness of the range for the Aquitard zone is missing.**
Response	The range of thickness of the Aquitard zone is several feet to over 100 feet. The Draft Final HRA will be corrected to include this information.
Signal Corp Specific Comment 8	**Page 6-12, 6.5.3: In lines 8 and 9, the statement, "...the beta-gamma dose rate at 1 square centimeter..." should probably read "...the beta-gamma dose rate at 1 centimeter..."**
Response	This will be corrected in the Draft Final HRA.
Signal Corp Specific Comment 9	**Page 6-31, 6.5.13.2: A NaI gamma scintillation detector is typically not responsive to alphas or betas. Was a different detector used?**
Response	Yes, a Ludlum, model 44-9, GM detector was used to take alpha/beta measurements.
Signal Corp Specific Comment 10	**10. Table 8-2** **A: Should be organized in some fashion. Suggest alphabetically by radionuclide.** **B: Some half-lives are wrong. 115In is 4.4 x 1015 and 129I is 1.57 x 106.** **C: In reporting half-lives, consistency would help. First, I think 3 significant figures are more than enough. Whatever is picked, it should be consistent. Second, the use of exponents should be standardized. Something like engineering notation, or "n.nn x 10x" would be nice.** **D: If 226Ra is present (and it is), should not the long-lived progeny (and perhaps even the short-lived) be listed here? (Isotopes such as 210Po and 210Bi). The same goes for 232Th. Progeny such as 228Ra, 228Th and others in secular equilibrium will probably also be present. The same should also apply to 244Cm. If it is (or was) present, then 240Pu should be.**

Response

A: The comment is appreciated and will be considered in preparation of the Draft Final HRA.

B: Based on the Nuclides and Isotopes, Fourteenth Edition, Chart of the Nuclides, the half-life of In-115 is 4.4×10^{14} years. On the Chart of the Nuclides the half-life of I-129 is 1.57×10^{7} years. These values will be included in the Draft Final HRA

C: The comment is appreciated and will be considered in preparation of the Draft Final HRA.

D: Table 8-2 lists potential radionuclides of concern from operations at NRDL and the shipyard. The decay daughters were not identified in the Draft HRA, but are considered when establishing release criterion and taken into account when reviewing laboratory analyses or assessing any contamination found at the site.

March 7, 2003
RESPONSE TO COMMENTS
DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II,
USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

RESPONSE TO DEPARTMENT OF HEALTH SERVICES
COMMENTS ON
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II,
USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

This document presents the Navy's responses to comments from the California Department of Health Services (DHS) on the "Draft Historical Radiological Assessment (HRA), Volume II, Use of General Radioactive Materials 1939-2002, HPS, San Francisco, California," dated March 29, 2002. The comments addressed below were received from DHS on June 7, 2002, and were limited to the Parcel A portions of the HRA document.

General Comment 1

The Navy should address the entire Hunters Point Annex or Shipyard in this document. Areas that have been previously addressed in Volume 1 should be referenced as such in the Executive Summary. Also, it should be clearly stated that any buildings or areas not specifically addressed in this document are considered to be non-impacted and require no further investigation. As this document may be the main reference regarding radiological issues, it is highly important that any and all information is correct as stated. This version of the document has been found to have many discrepancies that must be corrected. Please verify and correct all information in this document before another revision is published for review.

Response

The Navy is committed to addressing all radiological issues at the former Hunters Point Shipyard. One step in this process is the publication of Volumes I and II of the HRA. In some instances Volume I and Volume II cover the same areas although the radiological concerns are different. The Draft Volume II HRA published on March 29, 2002 contains a summary of historical authorizations, investigations and research, and cites Volume I. Discrepancies in the Draft Volume II HRA are being identified and resolved for issuance in the Final Draft Volume II HRA. The issue of non-impacted areas that require no further investigation will also be addressed. In addition, the results of the ongoing Phase V radiological investigation and remediation activities in Parcels B, C, D, and E will be published in subsequent remedial action reports.

General Comment 2

DHS appreciates the inclusion of all the documents found on the CD 2, Appendix B. These references have made this review much easier. As there is a massive amount of material, it would be helpful if the Navy would provide the specific location of the text referenced in the documents so that the reviewer(s) can more easily follow the Navy's logic and intentions.

Response The Navy acknowledges the comment from DHS and will stipulate the location of citation within references, where practical and appropriate, in the Draft Final HRA.

General Comment 3 **The history of many of the buildings is vague. The Navy should explain in more detail and provide the specific reference material used to generate the history of each building. Providing more of the information in the text and providing page numbers of the references used to verify the information would be helpful. For example, if known, please provide any information on when a building was built, the size of the building, which radionuclides if any may have been potentially present in each building, etc. The Navy should also explain in more detail why some of the nuclides may not be present now, etc. Any information on the machines used to produce radioactivity should be specifically identified. If there are records of serial numbers, dates of installation, operation or removal, and any residual radiation that could have been produced regarding these machines, this information should be provided or referenced.**

Response The Navy acknowledges the comment from DHS and will provide additional site history information in the Draft Final HRA to the extent practical. However, many of the details for buildings and equipment have not been found in historical information, and much information (such as individual building construction dates) may not be relevant to radiological operations.

General Comment 4 **Questions have been raised regarding buildings adjacent to Parcel A. Please verify that information provided in the HRA regarding Buildings 815 and 820 is accurate as written.**

Response Buildings 815 and 820 are Formerly Utilized Defense Site (FUDS) administered by the U.S. Army Corps of Engineers (USACE). However, they were addressed in the Draft HRA as they played a significant role in the radiological history of HPS. As discussed in the previous responses, all information in the Draft HRA is being reviewed, specifically cited in references, and expanded when possible for the Draft Final HRA. Buildings 815 and 820 have previously been radiologically cleared, are not located in Parcel A, and are not on Navy property.

Specific Comment 1 **<u>Page 6-32, Section 6.6.1, Parcel A:</u> Building 815 was found in this discussion of buildings located in Parcel A, though the maps provided do not show it in Parcel A. Please verify that Building 815 was meant to be included as a part of Parcel A.**

Response As discussed in the response to General Comment 4, Building 815 is a FUDS administered by the USACE. Building 815 is not Navy property and is not in Parcel A. This will be clarified in the Draft Final HRA.

Specific Comment 2 **<u>Page 6-33, Section 6.6.1, Parcel A, Building 815:</u> DHS was unable to find reference (NAVMED P-5055), which should contain the BuMed limits. Please provide these or provide the correct reference if this was a misprint.**

Response NAVMED P-5055 was not included in the references of the Draft HRA. Reference "SUPSHIP 1979" included the unrestricted release limits that were established by NAVMED P-5055. The Draft Final HRA will include NAVMED P-5055 as a reference. For clarification, the release limits in NAVMED P-5005 circa 1979 were:

LOOSE SURFACE CONTAMINATION LIMIT

a. 450 pCi/100cm^2 beta/gamma ~ 1,000 dpm/100cm^2
b. 50 pCi/100cm^2 alpha ~ 110 dpm/100cm^2

UNRESTRICTED AREA:

a. 2 millirem in any one hour.
b. 100 millirem in any seven consecutive days.
c. 500 millirem in a calendar year.

Specific Comment 3 **<u>Page 6-33, Reference (TtEMI 1997):</u> On page 16 of 271, Page E-13, Section 2.3, in paragraph above the table, the information regarding the release of the 12 FUDS and Parcel E sites appears to be containe d in reference document (PRC 1996d.) Please provide this reference and/or the unrestricted release documentation from the AEC or NRC.**

Response The unrestricted release letter issued by the Atomic Energy Commission (AEC) at the closure of NRDL is provided in Appendix B of the Draft HRA as reference "AEC 1970." The unrestricted release letter from the Nuclear Regulatory Commission (NRC) is provided in Appendix B of the Draft HRA as reference "NRC 1980."

Specific Comment 4

Page 6-34, Section 6.6.1, Parcel A, Building 821: Please provide the following information in this section:

a. **Please provide the date(s) when the x-ray unit was no longer used, moved, and the building vacated (unoccupied) and any references to this information**

b. **Please provide information regarding any use or occupation of this building from the date it was vacated until currently. Reference TtEMI 1998 noted some floor stains inside this building; were these stains ever identified or investigated?**

c. **Could Building 821 have been used for storage of any material?**

d. **Were there any procedures, policies or guidelines to prevent the use of unoccupied, abandoned, or empty buildings at Hunters Point? Was special permission or documentation required to enter locked buildings at HPS?**

Response

The Navy will include the requested information, as appropriate, in the Draft Final HRA. Preliminary information is provided below.

a. The one-MeV x-ray unit was installed in 1956. Additional information on termination of use or relocation of the x-ray unit and when Building 821 was vacated has not been found. Historical documents indicate Building 821 was not occupied when the laboratory closed on December 31, 1969. Referenced documents with the Draft HRA included enclosure (1), paragraph 2 of reference "SUPSHIP 1978" and enclosure (1), Section III.A of reference "NRDL 1969." NRDL prioritized transfer of radioactive sources (including machines) first to other naval activities and then to other government laboratories or non-profit laboratories and universities.

b. Available information indicates that Building 821 has not been used for anything other than equipment storage since NRDL was disestablished in 1969. The only documentation of floor stains in Building 821 is in the 1998 EBS. A physical inspection of Building 821 on August 26, 2002 identified only very small spots (less than 6 inches in diameter) that could be identified as stains. These areas are directly under ventilation ductwork. The inspection also identified areas on the concrete floor where the paint has worn off that could have been misidentified as stains. No floor stains had been identified prior to issuance of the Parcel A ROD; it does not appear that any CERCLA action to identify or investigate the stains is necessary at this time.

c. The only records reflecting storage of material in Building 821 are site inspection records that indicate compressed gas cylinders were stored in Building 821 after the NRDL was closed. There is no evidence available as to the size of cylinders or the type of gas they contained, nor is there any record of storage of gas cylinders in subsequent documentation.

d. Since closure of HPS, security of buildings has been managed by the site caretaker's office. The security of Building 821 is unlikely to be compromised given that it is a concrete structure with no windows and locked steel doors.

Specific Comment 5

FIGURES, Figure 6-2: The map from the draft HRA designated Figure 6-2 shows many buildings within Parcel A that appear to be colored a medium green (e.g., Building 813) to represent non-impacted buildings. Please address the following comments regarding this map:

a. My interpretation of Parcel A from this map is that all land areas and buildings except Buildings 816 and 821 are considered non-impacted. Please that all of the buildings and land areas shown in Parcel A are accurately represented

b. Buildings 816 and 821 are colored dark green representing that no further action is required. DHS sent a memo, dated August 24, 2001, stating that with respect to radiological issues, Building 816 was acceptable for unrestricted release. The Navy's letter and attached revised page 6-33, dated April 11, 2002, states that Building 821 requires no further action. Please verify that the revision dated 4/11/02 is accurate.

Response

a. Building 816 is the only radiologically impacted site in Parcel A. All remaining areas and buildings in Parcel A are considered non-impacted for radiological concerns as there is no history of use or storage of radioactive material in these areas or buildings. Building 821 was used as an x-ray facility; however, no radioactive material was used in the building, and therefore it is considered non-impacted.

b. As noted in the April 11, 2002 errata, page 6-33 the Navy contended that no further action was required for Building 821. However, to allay regulatory and public concerns, the Navy inspected Building 821 for potential radiological contamination in May through July 2002 as an additional precaution. The results of this inspection were documented in a formal report that was forwarded to regulators. In November 2002, CaDHS concurred with the results of the report stating that Building 821 is acceptable for unrestricted release.

Specific Comment 6	**TABLES, Table 6-1, Page 1 of 3: Please verify the information regarding Parcel A, Buildings 815, 816 and 821 is correct as written.**
Response	Building 815 is incorrectly included in Table 6-1 as being located in Parcel A. This will be corrected in the Draft Final HRA.
Specific Comment 7	**TABLES, Table 6-2, Page 1 of 5: Are there any dates that can be associated with Parcel A building 821?**
Response	The exact dates Building 821 was built, occupied and vacated have not been found. NRDL historical documents indicate Building 821 was built in the 1950s. NRDL closure reports indicate the building was vacated prior to closure of the laboratory on December 31, 1969. Additional information, if located, will be provided in the Draft Final HRA.

March 7, 2003
RESPONSE TO COMMENTS
DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II,
USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

RESPONSE TO AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY
PRELIMINARY REVIEW COMMENTS ON
HUNTERS POINT SHIPYARD, SAN FRANCISCO CALIFORNIA
DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II,
USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

This document presents the Navy's responses to comments from the Agency for Toxic Substances and Disease Registry (ATSDR) on the "Draft Historical Radiological Assessment (HRA), Volume II, Use of General Radioactive Materials 1939-2002, HPS, San Francisco, California," dated March 29, 2002. The comments were included in the body of a letter to the Southwest Division, Naval Facilities Engineering Command dated June 18, 2002 from Diane Jackson, Chief Defense Facilities Assessment Section B, Federal Facilities Assessment Branch, Division of Health Assessment and Consultation.

The comments were grouped into two different categories: Sampling Location and Proposed Sampling.

Sampling Location Comment 1	**We suggest that a summary table be included to identify all of the buildings/areas on base and for each of those, identify the radiologic material that was used/stored, how the material was used, the current use of the building/area, the designation as impacted/non-impacted and the rationale for that designation. The *Status of HPS Radiologically Impacted Sites and Results of MARSSIM Surveys Conducted by New World Technologies (NWT) March 2002* (pages 589 - 597), contains much of this basic information. However the table appears to be incomplete in the information it does provide, and the additional information requested would be helpful to understand and provide comments about the rationale for the buildings with 'no further action' recommended. In those instances where the contractor did not review or survey the building, how was the 'no further action' determination made?**
Response	A summary table accurately reflecting the use of radioactive materials in each of the impacted sites will be included in the Draft Final HRA.
Sampling Location Comment 2	**Clear rationales are required for all locations identified for 'no further action' (NFA). It appears that at least some of the areas identified as 'NFA' may indeed have some level of radiologic contamination (i.e., Building 103, pg 8-3; Building 130, pg 589). Specific areas of concern include buildings previously demolished or investigated/cleaned during the 1970/1980's and areas without widespread contamination that did have some detections.**

Response Sites are classified as "no further action" when the site's history and/or current radiological investigations ensure that the site meets today's release standards.

Sampling Location Comment 3 **Knowledge of the NFA rationale is necessary to evaluate those concerns because of technologic advances and the potential for some areas to have localized sources. First, advances in measurement and remediation technologies, and the levels that are appropriate to protect public may influence whether these areas should truly be considered clean for public use. Second, some areas without widespread contamination, but with limited detections, could be contaminated by localized material. It is not apparent if the sampling strategy supports an NFA designation.**

Response Before a site is classified as "no further action" all previous surveys are reviewed to ensure that the type of equipment and release standards are equivalent to today's standards. If that cannot be determined, then confirmatory surveys are scheduled for the site. Expanded information on site-specific NFA rationale will be provided in the Draft Final HRA. Information for areas determined to require "NFA" as the results of the Phase V Investigations will be documented in site-specific Phase V Investigation Reports.

Sampling Location Comment 4 **Our concern is that some buildings/areas may be designated non-impacted/NFA when, in fact, additional investigation may be necessary in order to protect public health when the property is turned over for public use. Section 8.2 (page 8-2) states that the "identification of an area as impacted or non-impacted is based solely on historical records and will not change." Therefore it is extremely important that all non-impact/NFA designations be fully supported by rationale based on records and sampling that completely substantiate the designation.**

Response Areas that have no reasonable potential for residual contamination are classified as *non-impacted areas*. Based on historical knowledge, site operations had no radiological impact on the area. Areas with some potential for residual contamination, or which at one time were contaminated from site operations are classified as *impacted areas*. Non-impacted areas by definition require no further action (NFA). Impacted areas may or may not require further action. A previously contaminated area that was cleaned would still be classified as an impacted area, even though the area required NFA. If the area is potentially contaminated, further action will be required. Typically, once an area is classified as impacted, it is never reclassified as non-impacted. Conversely, non-impacted areas are easily reclassified as impacted if required; i.e., new information becomes available indicating the area has potential for residual contamination from site operations. The Draft Final HRA will provide more information on all sites including those classified as non-impacted or NFA.

Sampling Location Comment 5	**Will (or have) the areas surrounding demolished buildings be surveyed to identify remaining sources?**
Response	The footprint of former buildings and areas within two feet of the footprint are being surveyed in the ongoing Phase V Investigation to ensure residual radiological contamination is addressed. The results of the Phase V Investigations will be addressed in site-specific reports separate from the HRA.
Sampling Location Comment 6	**How will storage areas be evaluated to identify if contamination exists as a result of spills or material loss?**
Response	Procedures have been developed to evaluate potentially contaminated areas or areas with limited historical information on former release surveys. These procedures following MARSSIM guidelines for Class 1, Class 2 and Class 3 surveys. Any impacted area, including storage areas, will be evaluated following the standard procedure that is appropriate for the area. The results of the ongoing evaluations will be documented in the Phase V Investigation Report for each site.
Sampling Location Comment 7	**We agree with the definitions of 'impact' vs. 'non-impact' areas. However the proposal to not change a designation, especially from 'non-impact' to 'impact' is a concern.**
Response	The HPS HRA will provide knowledge of the radiological history and conditions at HPS when published. For that purpose "the identification of an area as impacted or non-impacted...will not change" as the HRA is not a "living" document that will change as investigations are conducted. If additional information required the re-classification of an area after the Final HRA is published, it will be covered in subsequent reports. The HRA is a "snapshot in time" of what is currently known, and it will not be amended to include that changed condition.
Sampling Location Comment 8	**We are not able to fully evaluate if we agree or disagree with the designation of areas a non-impact or NFA. We would like to evaluate the areas on a case-by-case basis. To do so, we will need additional information describing the designations rationale.**
Response	The available historical information used to designate areas as non-impacted or NFA will be provided in the Draft Final HRA. Specifics of the ongoing Phase V Investigations will be provided in site-specific reports separate from the HRA.
Proposed Sampling Comment 1	**Please provide the objective of the sampling under consideration for areas that are identified for further sampling.**

Response The objective of sampling during a radiological investigation is to determine the concentration and type of radioactivity within a medium that is representative of the area of concern. This is an integral part of characterizing an impacted area to determine the nature and extent of the contamination and provide input to the final status survey. The results of sample analyses will be documented in the site-specific Phase V Investigation reports.

Proposed Sampling Comment 2 **Please provide the soil sampling depths. Some measurements that have been taken are described as from 'subsurface soil' (page 8-8); to evaluate this information in terms of potential effects on public health, it is important to know the depth and interval sampled. Surface and subsurface measurements are most helpful if the location within the soil profile is also provided.**

Response The depths soil samples are taken depend on the history and characterization of the site. Most soil samples are taken from the surface (within the top six inches). The term "subsurface soil" on page 8-8 is referring to samples taken previously in IR-01/21 as documented in the cited reference. The depths of samples taken in the ongoing Phase V Investigation will be detailed in the individual site-specific Phase V Investigation reports.

Proposed Sampling Comment 3 **Please provide the derivation of the investigation levels for surface samples. The levels presented in the report for surface samples may not be protective of public health. The additional information concerning the derivation of those levels is necessary to offer specific comments.**

Response The investigation levels stated in Table 4-1 of the HRA were based on NRC screening values (NRC NUREG/CR-5512, Vol. 3) and EPA Preliminary Remediation Goals (www.epa.gov). The investigation levels proposed are consistent with MARSSIM guidance for conducting final status surveys. Any measurement at a discrete location exceeding the investigation level will be flagged for further investigation.

Proposed Sampling Comment 4 **For example, the reference used to establish the investigation levels states "Screening levels are based on the assumption that the fraction of removable surface contamination is equal to 0.1. For cases when the fraction of removable contamination is undetermined or higher than 0.1, users may assume, for screening purposes, that 100% of surface contamination is removable; and therefore the screening levels should be decreased by a factor of 10." Have studies been performed to show what percent of the potential contamination is removable?**

Response The release limits for surface activity are derived using DandD Version 2 (NUREG/CR-5512, Vol. 2) for a specific radionuclide based on the default scenario of "Building Occupancy." The default fraction of removable surface contamination in DandD is 0.1. Considering the conservatism that is factored into this default DandD Building Occupancy scenario and the fact that no contamination (discrete or distributed) is actually found, the use of this default parameter is justified.

March 7, 2003
RESPONSE TO COMMENTS
DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II,
USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

RESPONSE TO CITY OF SAN FRANCISCO COMMENTS ON HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II, USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

This document presents the Navy's responses to comments from the City of San Francisco on the "Draft Historical Radiological Assessment (HRA), Volume II, Use of General Radioactive Materials 1939-2002, HPS, San Francisco, California," dated March 29, 2002. The comments, prepared by Professor Bill Kastenberg from University of California at Berkeley's Department of Nuclear Engineering, were forwarded to the Southwest Division, Naval Facilities Engineering Command by a letter dated May 30, 2002 from A. Don Capobres, Senior Project Manager, Hunters Point Shipyard Redevelopment Project Area. Attachment B to this letter also forwarded comments from Amy Brownell in the form of an email previously sent from the City (Brownell) to the Navy (Forman) on April 18, 2002.

General Comment 1.	**Discussion on Remaining Risks: Although the HRA does a good job gathering a large set of documents spanning many years, the HRA does not provide a clear discussion of the remaining risks. Section 8 ("Findings") and Section 9 ("Conclusions") identify the areas at the Shipyard that need further investigation. However, the language is too general for both technical and non-technical audiences to interpret these findings. For example, language such as "exceeded investigation levels" or "elevated" could mean that the current condition is 10 percent above background and poses no significant risk. Or, this language could mean high-level contamination with the potential for acute risks. The Navy should provide a separate discussion (such as an Executive Summary) of residual contamination and risks. This summary will be successful if it puts the radiological contamination into perspective for both technical and non-technical audiences. For example, if a worker encounters the worst area of contamination, is the exposure analogous to the radiation dose when flying across country, or analogous to the radiation from a spent fuel rod? Data indicates that the Shipyard has very low levels of radiological contamination, however, this needs to be clearly articulated by the Navy.**

Response

The Navy's purpose is to use the HRA to document the radiological history of a site, identify impacted and non-impacted areas, and recommend future actions. The Draft Final HRA will provide some additional information on risk from radiological concerns at HPS. However, the Navy will not have the information necessary to address levels of risk from all radiological concerns at HPS until the Phase V Investigations have been completed and the Phase V Investigation results will not be part of the Draft Final HRA. Risk management information will be provided in a separate document once the Phase V Investigations are finalized and data has been analyzed. Risk assessments, including radiological, will be included in the individual parcel FS reports.

General Comment 2.

Summary Matrix: Although the HRA provides numeric data in different locations, it is very difficult to assess how past and present levels compare to regulatory standards. It is also difficult to determine which sites have been cleared by regulatory agencies and which sites need further investigations. The City requests that the Navy construct a Summary Matrix that includes the following information for IR sites (soil and groundwater) and Buildings: parcel location, range of levels detected (both pre-cleanup and current condition), regulatory standard, status of investigation/cleanup, regulatory clearance, and /name/location of all relevant documentation. To illustrate this request, Attachment A of this comment letter includes an Example Matrix, "Summary of Radiological Investigations, Current Conditions, Regulatory Standards and Clearances, and Documentation." Although this Example Matrix does not provide the necessary data, it should provide a framework for this much-needed summary. (NOTE: The Example Matrix was included as Attachment A to the letter from the City of San Francisco however it has not been reiterated as part of the comment in the interest of brevity.)

Response

The Navy appreciates the time and effort put forth in preparing the Example Matrix. However, not all of the categories of information were available when the HRA was drafted. The Draft Final HRA will include more complete information on the status of radiological sites at HPS, but results of the Phase V Investigations will not be included. Those results will be published under separate cover in site-specific reports.

General Comment 3. **Inconsistencies: As described in an April 18th e-mail from the City (Brownell) to the Navy (Forman), there are many inconsistencies throughout the HRA. Examples of these inconsistencies include: buildings listed in more than one parcel, buildings described as needing "no further action" in one section and part of an ongoing investigation in another section, and various inconsistencies between graphics. Although these inconsistencies are not flaws in the characterization/cleanup approach, these errors have created unnecessary confusion. The Navy should correct these errors in the Final HRA and should provide a comprehensive errata sheet that lists the Draft HRA inconsistencies and corrections. The City's April 18th e-mail is provided as Attachment B to this comment letter.**

Response The Navy will correct the inconsistencies and inaccuracies in the Draft HRA during preparation of the Draft Final HRA. NOTE: Specific responses to the April 18th email comments are provided below as "Brownell" comments.

General Comment 4. **Cleanup Criteria: In Section 4.1.3 of the HRA, cleanup criteria is described as preliminary but currently based on NRC and EPA guidelines. The NRC standard for buildings is based on 10^{-3} cancer risk (NRC_1999.pdf on HRA CD #2). The EPA standard for soil and groundwater is based on 10^{-6} to10^{-4} cancer risk (EPA2002.pdf on HRA CD #2). What is the basis for selecting these cleanup standards? Are the NRC standards as protective as EPA's site-specific cleanup standards?**

Response The determination of cleanup standards at HPS is a complicated process involving the Navy, U.S. Environmental Protection Agency (EPA), and the State of California Department of Health Services (CaDHS). These agencies must review standards, risk analyses, methodologies, and future use of the site to determine the standards. In addition, the As Low As Reasonably Achievable (ALARA) concept is applied during the cleanup. As HPS is a NPL site, EPA risk-based standards are generally applied for soil and outside areas. EPA generally defers to CaDHS for building standards. CaDHS is currently basing release limits on a dose-based standard of 25 mrem/year and ALARA.

As stated in EPA's OSWER Directive 9200.4-18, Attachment B of August 20, 1997, the NRC dose-based cleanup standard of 25 mrem/year equates to approximately $5x10^{-4}$ cancer risk. The EPA's risk range of 10^{-4} to 10^{-6} is considered along with their recommended dose-based standard of 15 mrem/year (approximately $3x10^{-4}$ risk). As the NRC's standard for exposure to members of the general public is 100 mrem/year ($2x10^{-3}$ risk), the EPA and CaDHS standards are considered protective of human health and the environment.

Specific Comment 1.

Section 6.7. Section 6.7 is a summary of a radiation risk assessment for Parcel E. It is the only attempt at conveying a risk for any of the parcels. No mention is given of why Parcel E was chosen or why the other parcels were not assessed from a risk perspective.

The report acknowledges the EPA Superfund risk target for remediation as 10^{-6}, excess lifetime cancer risk. EPA acknowledges that risk ranges between 10^{-4} to 10^{-6} may be "acceptable" depending on site-specific circumstances (see National Oil and Hazardous Substances Pollution Contingency Plan—40 CFR 300). The Navy should determine if this rule was only meant to apply to soil clean up and for chemical pollutants. Or, if this rule was also meant for radiological risk and for other exposure pathways. This may become an important consideration because some of the risks calculated for Rn-222 in indoor air are calculated to be above 10^{-4}. This needs to be looked into further.

Response

Section 6.7 included a risk assessment for Parcel E because it was the only parcel where a risk assessment was performed. The Draft Final HRA will include clarification as to why only one risk assessment was included.

The EPA risk range of 10^{-4} to 10^{-6} is to be applied for the total risk from all hazardous substances at the site, including radiological contamination in soil, water, etc. The Rn-222 risk was calculated for residential buildings built over areas with radium devices present in the soil. The Navy is conducting detailed investigations of all impacted sites including those with radium devices in soil. The risk cannot be properly assessed until the investigations and remediations have been completed.

Specific Comment 2.

Section 8. This could be the most important part of the report. Unfortunately, it falls short of answering some very important risk related questions because there is a considerable amount of work in progress. It is not clear which environmental media (soil, groundwater, air, etc.) are of concern. For Parcel E groundwater, even though the groundwater that is contaminated will not be used as drinking water, the contamination exceeds MCLs . This issue requires a more detailed discussion regarding risk management.

Response

The Navy's purpose is to use the HRA to document the radiological history of a site, identify impacted and non-impacted areas, and recommend future actions. The HRA is an investigative tool to assess the radiological conditions of the site. Risk management will not be available until Phase V Investigations are finalized and data has been analyzed. Risk assessments, including radiological, will be included in the individual parcel FS reports.

Specific Comment 3.	**Section 8.4. This section considers potential exposure pathways and refers to the related Remedial Investigations. Words like "only slightly exceed background concentrations" are used and it is unclear what that means quantitatively.**
Response	The Draft Final HRA will provide more specific information on radiological concerns at HPS. Further, information will be provided in the Phase V Investigation Reports.
Specific Comment 4.	**Section 9. The conclusions regarding groundwater do not appear to be consistent with the findings of Section 6.**
Response	The Draft Final HRA will address inconsistencies and provide more specific information on groundwater.
Brownell General Comment	**After an initial review of the Draft HRA dated March 29, 2002, the City has noticed several inconsistencies throughout the document. Although these errors are not technical flaws in the HRA approach, the inconsistencies are creating unnecessary confusion. The City recommends that the Navy release a summary page to clarify these inconsistencies.** **The City recommends the following approach to identifying these inconsistencies: (1) Perform a computer search (Adobe "Find") of each building/site to ensure that the impacted/non-impacted status is consistent and accurate throughout the document. An example of these inconsistencies is Building 821. Building 821 is mentioned on page 6-34 as being part of NWT ongoing survey and then on page 8-3 it is listed as needing no further action. Obviously, one of these references is incorrect. (2) Compare figure colors to ensure that the colors are consistent and accurate throughout document. An example of these inconsistencies includes Figures 6-2 and Figure 8-4. Figure 6-2 shows several buildings in Parcel B and Parcel D as Class 3 impacted (orange). Figure 8-4 shows these same buildings as needing No Further Action (green). (3) Compare all Tables, Figures, and Section headings to ensure that buildings are listed in the correct Parcel. For example, Building 815 is incorrectly listed in Parcel A on p. 6-32 and Table 6-2.**
Response	The Navy appreciates the time and effort put forth in preparing suggested remedies to correct inaccuracies and inconsistencies in the Draft HRA. The Navy will address the inconsistencies and inaccuracies and consider the proposed remedies when preparing the Draft Final HRA.

Brownell Building 820 Comment	**We have not reviewed the entire HRA. However, a review of FUDS sites revealed the following discrepancies for Buildings 820, 815, 830, and 831.** **Building 820. On page 6-13, Building 820 is listed as having no G-RAM and AEC release is not required. However, on page 8-7, it is listed as part of the NWT ongoing survey. On page 6-57 and in Table 6-2, Building 820 is listed in Parcel E and a FUDS. It should be a FUDS but not in Parcel E.**
Response	Building 820 is a FUDS outside of Parcel E and not part of the NWT ongoing Phase V investigation. The Navy will address this in the Draft Final HRA.
Brownell Building 815 Comment	**We have not reviewed the entire HRA. However, a review of FUDS sites revealed the following discrepancies for Buildings 820, 815, 830, and 831.** **Building 815. On page 6-32 and Table 6-2, Building 815 is incorrectly listed in Parcel A. In Table 7-1 and all figures, Building 815 is correctly listed as not being in Parcel A.**
Response	Building 815 is a FUDS outside of Parcel A. The Navy will address this in the Draft Final HRA.
Brownell Buildings 830/831 Comments	**We have not reviewed the entire HRA. However, a review of FUDS sites revealed the following discrepancies for Buildings 820, 815, 830, and 831.** **Buildings 830/831 (kennels). On page 6-57, page 8-7, Table 6-1, and Table 6-2, Buildings 830 and 831 are listed in Parcel E. However, in Table 7-1, Buildings 830 and 831 are not in Parcel E but are listed as a FUDS. We believe the FUDs designation is correct. On page 6-57, Figure 6-2, and Table 6-1, Buildings 830 and 831 are not part of the NWT ongoing survey. However, on page 8-7 and Figure 8-4, Buildings 830 and 831 are part of the NWT ongoing survey.**
Response	Buildings 830 and 831 are FUDS outside of Parcel E and are not part of the NWT Phase V ongoing investigations. The Navy will address this in the Draft Final HRA.
Brownell Building 821 Comments	**We also noticed some errors with the Building 821 information. Building 821 is on Parcel A.** **Building 821. On page 6-13, Building 821 is described as having no G-RAM and AEC release is not required, and on page 8-3, Building 821 is described as needing no further action. However, on page 6-34, Building 821 is listed as part of the NWT ongoing survey. On page 6-34, page 8-3, Figure 7-1, and Tables 6-1/6-2, Building 821 is listed in Parcel A. However, in Table 7-1, it is listed as a FUDS. We believe the Parcel A listing is correct, but please check.**
Response	Building 821 is in Parcel A. Originally it was not part of the NWT ongoing Phase V investigations, however it was added to allay regulatory and public concerns. The Navy will address this in publication of the Draft Final HRA.

RESPONSE TO LENNAR/BVHP DEVELOPMENT TEAM COMMENTS ON HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II, USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

This document presents the Navy's responses to comments from the Lennar/BVHP Development Team on the "Draft Historical Radiological Assessment (HRA), Volume II, Use of General Radioactive Materials 1939-2002, HPS, San Francisco, California," dated March 29, 2002. The comments, prepared by CH2M HILL for the Lennar/BVHP Development Team, were forwarded to the Southwest Division, Naval Facilities Engineering Command by a letter dated May 30, 2002 from Lennar/BVHP.

The responses below were made in response to comments made by Dr. Steven Clark, Senior Environmental Engineer with CH2M HILL, Hanford, Inc.

Clark Comment 1)

The Draft Historical Radiological Assessment is a very good technical document but it is not suitable for presentation to the public as a source of human health risk information. It simply requires too much effort to become familiar with the document and the many acronyms it contains. The reader is kept waiting through hundreds of pages of information, only to be told nothing more than vague generalities about the level contamination or cleanup activities.

The document does not answer the questions: "Is the site clean? Is the site safe?"

Response

The purpose of the HRA is to document the radiological history of a site, classify sites as "impacted" or "non-impacted" by radiological operations, and recommend future actions. While the HRA will document any previous site clearances, the HRA will not be used to document whether a site is "clean" or "safe." Phase V Investigation Reports will be used to document ongoing remedial actions, address the issue of risk from residual radioactivity, and provide free release documentation for regulator concurrence.

Clark Comment 2)

A clear statement of whether or not radiological contamination problems are present at Hunters Point Shipyard needs to be made in the public summary and in the executive summary. These summaries should describe the sources of the radioactive materials that are included in the risk assessment information.

Response

Improved public and executive summaries discussing radiological contamination problems will be included in the Draft Final HRA. In addition, follow-on site-specific information will be provided in the Phase V Investigation Reports.

Clark Comment 3)	**The following statement needs to be clarified and substantiated in the public and executive summaries. "All materials from vessel decontamination functions from Operation Crossroads nuclear weapons testing from 1946 to 1948 have been removed from Hunters Point Shipyard and properly disposed of."**
Response	The Draft HRA does not appear to contain the statement quoted above. However, additional information concerning the disposition of residues from the decontamination of OPERATIONS CROSSROADS ships at HPS will be provided in the executive and public summaries of the Draft Final HRA.
Clark Comment 4)	**It is important to lay to rest public doubts regarding "secrets" at Hunters Point Shipyard. Therefore, a statement as to whether there are any remaining "classified" (including "Secret," "Top Secret," or similar) documents regarding past or present activities involving radiological materials at Hunters Point Shipyard exist, and if so, why.**
Response	NRDL was tasked with assessing the effects of nuclear weapons and developing decontamination methods. NRDL did not test or develop nuclear weapons. When NRDL was operational, much of the work was classified. Since that time, most NRDL classified reports have been declassified. The remaining classified records deal mainly with various nuclear weapons experiments that were conducted at remote locations. Records remain classified when the information still has an impact on national security. The types and locations of radioactive contamination at HPS is not classified information. All contamination at HPS has been or will be addressed in unclassified documents.
Clark Comment 5)	**The following questions should be clearly answered in the public and executive summaries: Is additional cleanup of radiological materials required at Hunters Point Shipyard? Are there radioactive materials present above some regulatory standards or above "background?"**
Response	The purpose of the HRA is to document past radiological operations, provide a "snapshot" of the radiological conditions at the facility, and recommend further actions. The executive and public summaries will address the content of the HRA. Phase V investigations are ongoing to characterize the extent of residual contamination, and determine needed actions. The Draft Final HRA will provide more details on residual contamination and recommended cleanup actions. Additionally, information will be provided in the Phase V Investigation Reports.
Clark Comment 6)	**Any acronyms used in documents for the public should be confined to a very narrow list that would be easily recognized. Acronyms like "EPA," "CERCLA," and "MARSSIM" would be expected to be meaningful to the public. G-RAM and a host of other acronyms are simply confusing.**

Response

The HRA is a technical document and will contain industry-specific acronyms that may not be immediately understood by the public. For this reason, the Draft Final HRA will include a revised public summary that will minimize the use of acronyms and only use those commonly accepted by the intended audience. Acronyms within the HRA will be reviewed to ensure they are defined as needed for clarity, and included in a master list.

Clark Comment 7)

Section 4.1.3 States that the Navy and regulatory agencies have not yet agreed upon appropriate background or dose- or risk-based screening levels, yet NRC guidelines (25 mrem/yr) are proposed for buildings and the EPA carcinogenic risk range (10^{-6} to 10^{-4}) is used for soil. There is a great disparity here because the NRC guideline corresponds more closely to a 10^{-3} risk than to the EPA risk range.

Response

The purpose of the HRA is to provide a roadmap of what has happened at HPS and where residual contamination could exist. While release limits used in historical radiological release actions will be documented, the Navy does not intend to use the HRA to document screening levels or release levels for ongoing Phase V Investigations at HPS. The current release levels for soil, structures and buildings will be determined with the appropriate regulatory agencies and documented in the Phase V Investigation reports for each impacted site.

Clark Comment 8)

Section 6.7, the Parcel E Risk Assessment should say why Parcel E was selected for a risk assessment and clearly identify the sources of radiological contamination. It should be stated in the opening paragraph of Section 6.7 that "the Navy will undertake actions to remove Radium-226 sources at Parcel E" because the excess lifetime cancer risk is above the value of 10^{-6} used by the EPA as a point of departure but within the risk range of 10^{-6} to 10^{-4} established by EPA as an "acceptable" risk range.

Response

The risk assessment discussed in Section 6.7 was conducted by Tetra Tech in 1997 and only addressed certain portions of Parcel E. It was included as part of the historical actions because it is the only radiological risk assessment performed at HPS. The Navy is still in the process of characterizing the areas mentioned in Section 6.7 and will establish necessary actions with regulators after that time. Radiological risk will be included with the risk assessments for each parcel included in the respective FS reports.

Clark Comment 9)	**Use "10^{-6} to 10^{-4}" rather than "1 x 10^{-6} to 1 x 10^{-4}" because the latter conveys a false sense of precision in measurements and regulation that does not exist.**
Response	The terminology that was included was extracted from reference documents. The Hunters Point Shipyard Conveyance Agreement between the Navy and City of San Francisco and the Parcel B ROD require use of that format.
Clark Comment 10)	**Tables 8-1 and 8-2: The word "RADIONUCLIDES" is misspelled in the last line of the title of these tables.**
Response	The Navy will attempt to ensure that all typographical and grammatical errors are corrected in the Draft Final HRA.
Clark Comment 11)	**Page 4 of Table 8-1: Remove the following four lines from this table:** **Ga - Gadolinium (Note: gadolinium appears twice; Ga is the symbol for gallium)** **HPS - Hunters Point Shipyard (Note: HPS is not a radioisotope)** **NRDL - Naval Radiological Defense Laboratory (Note: NRDL is not a radioisotope)** *** - Positron (Note: a positron is not a radioisotope)**
Response	Page 4 of Table 8-1 was provided to define the acronyms used in the table. The abbreviation Ga for gadolinium will be corrected in the Draft Final HRA.
Clark Comment 12)	**Page 1 of Table 8-2: The half-life of I-129 is 1.57 x 10^{7} (not 1.57 x 10).**
Response	The half-live of I-129 will be corrected in the Draft Final HRA.

March 7, 2003
RESPONSE TO COMMENTS
DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II,
USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

The responses below were made in response to comments made by Michelle Mandis, Civil Engineer Specializing in Radioactive and Mixed Waste, CH2M HILL, Hanford, Inc.

Mandis Comment 1)	**In the last paragraph before section 6.4, the report states "that the records regarding disposal to the San Francisco Bay of radiological wastes were lost". It also approximates that "a maximum of 1 curie of fission products resulted from these disposals as estimated by a Navy review." However, no information is presented about this review. This statement would not be defensible during a public hearing.**
Response	The last paragraph before Section 6.4 is a direct quote from a letter that the Navy sent to the Mayor of the City of San Francisco (Mayor Feinstein) in 1982. The Navy is investigating how the quantity was derived.
Mandis Comment 2)	**Gamma and beta results are mentioned in the "Findings" portion of section 6.5.12.2. However, no alpha results are presented. I assume that alpha contamination in the landfill was not present or suspect in this area, thus not sampled, and not reported. Due to the length of the report and for clarity and comprehensiveness to the public, it may be worth noting.**
Response	The "Findings" portion of Section 6.5.12.2 states, "Gross airborne alpha and beta particulate activity was less than 10 percent of standards in Title 10 of CFR, Part 20." This information will be amplified in the Draft Final HRA.
Mandis Comment 3)	**Testing results for sandblasting materials were below EPA criteria for what radionuclides? What radionuclides in the five samples were analyzed during the IT Corporation investigation? (The other sections provide more information. This section needs more details).**
Response	It is assumed that the comment refers to Section 6.5.13.1. This section will be revised to provide the results as described in the reference (RASO 1999). The five samples were analyzed for total isotopic americium/curium, total gamma spectroscopy, total iron-55, total isotopic plutonium and total isotopic uranium. The laboratory reported, "all data for associated QC met EPA or laboratory specifications except where noted in case narrative." The case narrative did not note any exceptions.
Mandis Comment 4)	**In section 8.1, a less than 3-year half-life was the criteria used to exclude radionuclides. However, Table 8-2 lists Na-22 (which has a 2.6-year half-life). Either exclude it from Table 8.2 or change the text in section 8.1 to reflect the 2.6 half-life exclusion criteria.**
Response	Na-22 will be removed from the list of potential radionuclides of concern in the Draft Final HRA.

Mandis Comment 5) **Potassium-40 is a nutrient. It either has no risk associated with it (ecological or human health). or may have risk but may be present in such low concentrations that it is not likely to migrate through a risk pathway to the receptors (so no limited or retarded transport properties).. This second exclusion criteria could be applied to the listing in Table 8.2 to eliminate other radionuclides such as: Ac-227, Ba-133, Bi-207, Cl-36, Gd-152, In-115, Kr-85 (Krypton is a gas at STP and is no longer present at the site), Nb-94, K-40 (is a naturally occurring isotope and a nutrient), Tc-97, Tl-204, and Ti-44. Also edit the half-life of Kr-85 (1.57×10^7).**

Response The purpose of the HRA is to provide a complete radiological history of the site and to include any and all radioisotopes that may have been used at the site. The isotopes referred to were used by NRDL. The half-life of Kr-85 is 10.76 years per the Radiological Health Handbook.

Mandis Comment 6) **Overall this was a very good technical document. However, it will not be an efficient public communication device. The CERCLA RI/FS format was followed; but the main goal of the document was lost in the historic detail of the process/operations and several site investigations. The risk portion of the document failed to identify the assumptions used in the calculations. (Why was parcel E chosen? Is it a worse case?) Also, the affect or impact of the calculated risk on the surrounding population was not considered.**

Response The Navy appreciates your observation about the Draft HRA. The purpose of the HRA is to provide a complete radiological history of the site, which requires lengthy and technical historic detail. The only radiological risk assessment done at HPS had been for specific areas of Parcel E known to contain residual radioactivity. Complete risk management information will not be available until the Phase V Investigations are finalized and data has been analyzed.

Mandis Comment 7) **To make this document usable and easy to read we propose to re-organize the main sections to provide a consistency of the vast information presented. The following format is suggested: (The suggested format was not included in the response to comment document in the interest of brevity.)**

Response The Draft HRA was prepared using the general outline for Historical Site Assessments in the Multi-Agency Radiation Surveys and Site Investigation Manual (MARSSIM). The Navy is in the process of preparing the Draft Final HRA and will consider the proposed format within the constraints of the MARSSIM outline.

RESPONSE TO COMMENTS ON HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II, USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002 SUBMITTED BY FIL FONG, FORMER NRDL EMPLOYEE

This document presents the Navy's responses to comments from Fil Fong on the "Draft Historical Radiological Assessment (HRA), Volume II, Use of General Radioactive Materials 1939-2002, HPS, San Francisco, California," dated March 29, 2002. The comments were submitted by mail in a letter of September 29, 2002 addressed to Dick Lowman, Naval Sea Systems Command Detachment, Radiological Affairs Support Office, Yorktown, Virginia.

Comment 1 **Pg. 1-2, "1.3 REGULATORY INVOLVEMENT"**

This statement is not completely accurate. At times, nuclear vessels dock at HPNS and their radiological regulatory involvement was governed under the nuclear navy. The nuclear navy received their nuclear material under Section 91b of the Atomic Energy Act of 1956, which exempted these materials from the oversight by the AEC, ERDA or DOE. At NRDL, there were times in which radioactive materials were received in which AEC had no legal regulatory responsibility. I remembered several 239PuBe neutron sources were received at NRDL for fluence calibration, but exempted from AEC oversight because these sources were authorized under Section 91b of the AEC Act.

Response The Navy agrees that radioactive material authorized for use by Section 91b of the Atomic Energy Act was used by NRDL at HPS. Section 1.3 is provided to explain what regulatory agencies were involved with the use of radioactive materials at HPS and NRDL. This is not meant to imply that only radioactive material authorized by those agencies was used at HPS and NRDL.

Comment 2 **Pg. 4-5 "*Naval Shipyard Operations ..."**

"Typical ship overhaul and repair functions" may involved the use of "Black Beauty" sand for sandblasting and Th-Unatural welding rods. Unless there are evidence to preclude these items, I would suspect these items could be sources of contamination at HPA.

Response Typical shipyard operations did include the use of sandblast grit and welding rods. Any areas known to contain sandblast grit, or where sandblast grit or welding rods may have been used will be investigated. To date, specific documentation of the use of "Black Beauty" sandblast grit and thoriated welding rods has not been found.

Comment 3 **Pg. 6-1 "6.0 HISTORY" 2nd sentence**

"In 1946, a group of scientists was assigned to study the effects of nuclear weapons..." In 1946, I think the hydrogen bomb has not yet been developed. It would be more accurate to replace the adjective "nuclear" with atomic.

Response Navy concurs that the term "atomic weapons" would be more appropriate when describing the mission of the scientists in 1946. The term "nuclear weapons" was used in the Radiological History of Naval Radiological Defense Laboratory that is an enclosure to SUPSHIP letter 100-97 of 11 December 1978, the cited reference for that statement.

Comment 4 **Pg. 6-4 1st paragraph, last sentence**

"AEC licenses were not issued for research using radium, radioactive materials collected from weapon testing (i.e. fallout), radioactive materials authorized under the Section 91b of the Atomic Energy Acts, and electrical machines that produced ionizing radiations." (Suggested changes underlined.)

Response Navy is in the process of preparing the Draft Final HRA and will consider the proposed revision.

Comment 5 **Pg. 6-4 2nd paragraph, 1st sentence.**

"NRDL established a Radioisotope Committee to manage the safe use of all radioactive materials and machines that produced ionizing radiation." (Editorial changes underlined.)

Response Navy is in the process of preparing the Draft Final HRA and will considered the proposed revision.

Comment 6 **Pg. 6-5 "Liquids" 1st bullet**

Please make it clear that the laboratory sinks and drains in Building 815 are not for the disposal of any radioactive material. Apparently, several people think we disposed of radioactive material via the laboratory drains. No, No, No!

Response Any misconception that radioactive material was disposed of in the laboratory sinks or drains will be clarified in the Draft Final HRA.

Comment 7 **Pg. 6-5 1st bullet. Last sentence**

Why repeat what was stated in the first sentence of this bullet?

Response It is assumed that the comment refers to the first bullet under the subtitle "Solids" on page 6-5. The duplication of statements will be eliminated in the Draft Final HRA.

Comment 8 **Pg. 6-5 2nd bullet, 1st sentence**

Replace the word "irradiation" with the adjective "uptake." Irradiated animals are not made radioactive and do not need to be dispose in accordance with AEC regulations. The irradiated animals were disposed via normal shipyard waste or normal biological disposal company.

Response It is assumed that the comment refers to the first bullet under the subtitle "Solids" on page 6-5. The Navy agrees the term "irradiation" is inappropriate for the statement and will correct the statement in the Draft Final HRA.

Comment 9 **Pg. 6-6 Third bullet, 1st sentence**

At the end of the first sentence, insert after the word "universities", that have proper licensing or authority from their regulatory agencies. We don't distribute radioactive materials to just anyone.

Response Navy is in the process of preparing the Draft Final HRA and will consider the proposed revision. However, there were radioactive sources and radiation-producing machines transferred to other agencies that did not require a license or regulatory oversight.

Comment 10 **Pg. 6-6 "Gases"**

The heading of "Gases" is inaccurate. The following three bullets show only the first bullet is sampling for 3H gas. The other two bullets are air sampling via filtered particles. It is suggested that the title should be changed to the medium, "Air."

Response Concur that the term "Gases" is inappropriately used. This will be corrected in the Draft Final HRA.

Comment 11 **Pg. 6-13 "Building 815" 3rd sentence**

"Two radioactive waste storage tanks located on the west end of the building..." These two tanks were NOT radioactive. How did the author(s) got the impression that the tanks were "radioactive?" I hope it was not based on what I had (mis)represented to you. Did they have another reference to state that those tanks were "radioactive?" Remember, the tanks were built to demonstrate to the AEC that we were not releasing effluence from Bldg 815 exceeding the legal limits for concentrations as well as total quantity for the year. The practice of defensive health physics was alive and well at NRDL.

Response Navy concurs that the waste storage tanks at the west end of the building were not radioactive. The proper use of the tanks will be clarified in the Draft Final HRA.

Comment 12 **Pg. D-2**

The comments on the write-up of the interview with me were transferred to you on 081302. If you need a copy, please let me know.

Response Navy has the comments you forwarded in August 2002 and will incorporate them into the Draft Final HRA.

March 7, 2003
RESPONSE TO COMMENTS
DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II,
USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002

RESPONSE TO COMMENT ON
HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA
DRAFT HISTORICAL RADIOLOGICAL ASSESSMENT, VOLUME II
USE OF GENERAL RADIOACTIVE MATERIALS, 1939-2002
SUBMITTED BY KEVYN LUTTON, RESIDENT

This document presents the Navy's responses to comments from Kevyn Lutton on the "Draft Historical Radiological Assessment (HRA), Volume II, Use of General Radioactive Materials 1939-2002, HPS, San Francisco, California," dated March 29, 2002. The comment was submitted by telefax to the Southwest Division, Naval Facilities Engineering Command on May 28, 2002.

Comment

I spent several hours in Waden Bayview Library reading the HISTORICAL RADIOLOGICAL ASSESSMENT for Hunters Point Shipyard. (Shortly after The HRA came out I was able to read it online. But after a few days it was impossible to get it as a web site.)

I feel that I have spent enough time pouring over the documents to conclude that they are filled with inconsistencies, contradictions and data gaps. Facts seem to be obfuscated by quickly compiled and uninterpreted charts of numbers.

Response

The Navy acknowledges that there are inconsistencies, contradictions and data gaps in the Draft HRA. These deficiencies will be corrected prior to publication of the Draft Final HRA. Additionally all tables and appendices will be reviewed and clarified as appropriate.